



Implementing Tangible Governance

A Case Study in Applying Semantics to Enterprise Service Registration

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Agenda

- **What is governance in the context of SOA?**
- **Why is governance of a SOA so hard?**
- **The NCES Metadata Environment**
- **NCES Service Discovery Challenges**
- **The Net-Centric Publisher**
- **Applying Semantics**
- **Questions & Answers**

Governance in Service Oriented Architectures

- **First: Why SOA?**

- Improved agility in business processes
- Improved decision making through information flow
- Decreased cost of change
- ...

- **Why Governance?**

- The business proposition of SOA collapses without structure in the way a Service-Oriented Enterprise is managed
- If the Enterprise cannot:
 - Publish services,
 - Find services easily, and
 - Use services easily...

Then the promises of SOA will fail to be realized.

If the Governance is broken, then so is the Architecture

SOA Governance

- **What makes it hard?**
 - Differences in processes across the Enterprise
 - Resistance to change
 - Policy Confusion
 - Differing interpretation of policies
 - Conflicts between old and new policies (failure to appreciate changes in underlying assumptions)
 - Information Assurance and Security
 - Balancing the needs to know, to protect, and to share
 - Competing Interests
 - Lots of mission needs
 - Lots of differences in approach
 - Lots of stakeholders

All of this adds up to increased complexity

Governance must support diversity and complexity!

Case Study: NCES Service Discovery

- **NCES Service Discovery**

- A UDDI-compliant registry used with other supporting capabilities to enable publication and discovery of services across the DoD Enterprise

- **Challenges**


- Governance
 - The governance processes employed required users to be familiar with multiple capabilities in order to publish a single service
 - This caused confusion for users
 - Organizations wanted to find services in different ways
 - Organizations wanted to categorize services differently
 - The guidance did not consider community specific needs
- UDDI
 - Products are onerous for operators to use, navigate, and understand
 - Search API has limitations; data model is unintuitive
- Tools
 - Governance tools are complex to configure & use
 - UDDI population is inconsistent between tools

Case Study: Overcoming the Challenges

- **Net-Centric Publisher**

- Provides a vastly simplified user interface with an integrated workflow for publishing metadata and services into the NCES Metadata Environment
- Formalizes the agreed upon governance processes
- Eliminates the need for user interaction with underlying infrastructural capabilities
- Eases the complexity of service publication by removing the need to understand UDDI and leveraging the users' understanding of the higher order concepts
- Improves the user experience
 - Provides contextualized help at each step in the process
 - Focuses on supporting the user, not simply the data entry


Net-Centric Publisher

**DATA SERVICES ENVIRONMENT**You are logged in as
Joe Pantella

UNCLASSIFIED

WelcomeMetadata RegistryNet-Centric PublisherService DiscoveryEnterprise Service Management

Home
Dashboard
DDMS
Providers
Services
Resources
Taxonomies
Learn
Feedback and Support
Administration

NET-CENTRIC PUBLISHER

CREATE A NEW SERVICE

METADATAGOVERNANCEENDPOINTSARTIFACTSCATEGORIZATIONSUMMARY

Service Name*: Meteorological Status Service?

Version*: 2.4

Availability Date*: 04/12/2010

Classification*: Unclassified

Lifecycle Stage*: Pilot

Forge.mil Project URL: https://software.forge.mil/ meteorologic

Description*:
Service to provide current and future meteorological conditions for specified areas.

PrevNextSavePublishCancel

NCP v2.0
Questions or Suggestions? [Click here for Feedback and Support](#)
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Applying Semantics

- **Challenge: Enabling diversity among organizations**

- Applying semantics to services allows for users to register and discover services in a way that best suits their needs
- It allows users to categorize services both for the enterprise and for their existing user base
- The DoD/IC SR&G Working Group identified the “Mission Areas” taxonomy as *the* taxonomy that is required to be used when registering a service.
 - The problem is the Mission Area taxonomy is very broad
 - Useful at the Enterprise level, but not at the COI level

- **How did we address this challenge**

- By leveraging UDDI tModel support to enable COI taxonomies
- By allowing users to easily add and apply their own taxonomies
- By making the application of these taxonomies easy
- By enabling validation services to ensure correct usage & integrity

Net-Centric Publisher

The screenshot displays the Net-Centric Publisher web application. At the top, a gold banner features the Department of Defense seal on the left, the text "DATA SERVICES ENVIRONMENT" in the center, and the user login "You are logged in as Joe Pantella" on the right. Below the banner is a dark blue navigation bar with tabs for "Welcome", "Metadata Registry", "Net-Centric Publisher" (which is active), "Service Discovery", and "Enterprise Service Management". A green "UNCLASSIFIED" label is positioned to the left of the "Net-Centric Publisher" tab.

On the left side of the application, a light blue sidebar contains a vertical menu with the following items: Home, Dashboard, DDMS, Providers, Services, Resources, Taxonomies, Learn, Feedback and Support, and Administration. At the bottom of this sidebar is a blue button with a circular arrow icon and the text "NET-CENTRIC PUBLISHER".

The main content area is titled "EDIT SERVICE" and contains a sub-navigation bar with tabs for "METADATA", "GOVERNANCE", "ENDPOINTS", "ARTIFACTS", "CATEGORIZATION" (which is active), and "SUMMARY". A help icon (?) is located to the right of this bar.

The "CATEGORIZATION" tab displays a section titled "Applied Categories" with a yellow background. It lists "Mission Planning" with a "Delete" button to its right. Below this is a scrollable list of categories. The "Command" category is expanded, showing a list of sub-items: "Mission Modeling", "Decision Support", "Command", "Common Situation Awareness", "Force Planning", "Operations Planning", and "Mission Planning". Other visible categories include "Business", "Infrastructure", "Combat", "Organizational Interoperability", and "Action Support".

To the right of the category list is a "Selected Categories:" section. It currently lists "Operations Planning" and "Common Situation Awareness". Below this list are "Apply" and "Cancel" buttons.

At the bottom of the main content area, there is a row of five buttons: "Prev", "Next", "Save", "Publish", and "Cancel".

Conclusions

- **Conceptually simple services can be incredibly complex**
 - Service Discovery is a very simple concept
 - Technologies, diversity, culture, security, and competing interests infuse complexity into a material solution
 - UDDI products where the UI closely mimics the UDDI data structure require too much effort for users to understand
- **Governance must support diversity and complexity**
 - Consider the diversity of the Enterprise during the governance processes
 - Keep governance policies small, tight, and easy to understand
 - Let organizations govern themselves
 - Ensure that Enterprise governance is flexible enough to meet Enterprise objectives while allowing organizations within the Enterprise to meet their mission objectives
 - Semantic capabilities can go a long way to enabling communities and diffusing conflicts between organizations.

Questions



Thanks !!

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Net-Centric Enterprise Services (NCES)

- **NCES provides a foundational suite of SOA enabling and other capabilities focused on enabling the DoD's Net-Centric Data Strategy. These capabilities include:**
 - SOA Foundation capabilities
 - Content Discovery capabilities
 - Collaboration capabilities
- **The NCES Metadata Environment is a subset of services offered by these capabilities including:**
 - Metadata Services
 - Service Discovery
 - Enterprise Catalog